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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/622,357	07/17/2003	Hideo Kobayashi	SHX 340	5352

23581 7590 07/19/2006

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EXAMINER	
GOFF II, JOHN L	

ART UNIT	PAPER NUMBER
1733	

DATE MAILED: 07/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/622,357	KOBAYASHI ET AL.	
	Examiner	Art Unit	
	John L. Goff	1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,6,7 and 11-39* is/are pending in the application.

4a) Of the above claim(s) *11-39* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,6 and 7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/30/06 has been entered.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Objections

3. Claims 1, 6, and 7 are objected to because of the following informalities: In claim 1, line 1 delete "a". In claim 1, line 6 delete "substrate" and insert therein - - substrates - -. In claim 6, line 1 delete "a". In claim 7, line 1 delete "a".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claim 7 requires a step wherein after the adhesive is semi-cured or cured the first and second disc substrates are transferred to a next process and the adhesive is further cured. It appears applicants have used "semi-cured" to denote partial curing and "cured" to denote full curing such that it is unclear how a cured adhesive can undergo further curing. It is suggested applicants delete from claim 7, line 3 "or cured" to overcome the rejection.

Claim Rejections - 35 USC § 103

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maenza (U.S. Patent 5,968,305) in view of Young (U.S. Patent 6,561,640), Tsuboi et al. (JP 62-155965 and the abstract), Ohno et al. (U.S. Patent 6,613,170), and Anzai et al. (U.S. Patent 6,485,808).

Maenza discloses a method of bonding first and second disc substrates, e.g. including optical recording medium/layers, comprising providing the first and second disc substrates with an ultraviolet (uv) light curable resin therebetween and applying uv light from a narrowband source such as a scanning laser through one of the disc substrates to cure the resin (Figures 3 and 4 and Column 3, lines 8-32). Maenza teaches a narrowband uv light source is preferable to a

wideband uv light source such as a uv lamp because wideband light sources are difficult to spectrally control generating large amounts of energy, i.e. energy having wavelengths outside of those required to cure the uv light curable resin, and wideband uv light sources also generate large amounts of heat that can warp the first and second disc substrates and require longer curing times (Column 1, lines 48-56 and Column 2, lines 36-55). Maenza further teaches the disc substrates rotate during application of the uv light (Column 3, lines 33-61). Maenza does not specifically teach applying the uv light from a light emitting semiconductor element, e.g. light emitting diode (LED). However, it was known in the art that scanning lasers and light emitting diodes are functionally equivalent narrowband sources of uv light for curing uv light curable resins as shown by Young. Young discloses an improved method for curing uv light curable resins using narrowband uv light sources such as scanning lasers or an array, i.e. plurality, of light emitting diodes. Young teaches the improved method results from using a narrowband uv light source because a wideband uv light source such as a uv lamp emits broad ranges of frequencies and wavelengths not used to cure the uv light curable resin resulting in wasted energy (Column 2, lines 29-45 and Column 4, lines 20-42). It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the uv light from a narrowband uv light source as taught by Maenza using any of the functionally equivalent narrowband uv light sources known in the art including scanning laser, LED, etc. as shown by Young as only the expected results of applying uv light without wasting energy would be achieved.

Maenza does not specifically teach rotating the first and second disc substrates with resin therebetween at a high speed to spread the resin between the disc substrates. Tsuboi et al.

disclose applying a uv light curable resin to a disc substrate includes rotating the disc substrate at a high speed to uniformly spread the resin over the disc substrate (See the abstract). Ohno et al. disclose curing a uv curable resin between two disc substrates to an even thickness comprising providing two disc substrates with a uv light curable resin therebetween and rotating the disc substrates at a high speed to evenly spread the resin over the disc substrates (Column 17, lines 34-37). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include in the method disclosed by Maenza as modified by Young a step of rotating the disc substrates with resin therebetween at a high speed to uniformly spread the resin over the disc substrates as shown by Tsuboi et al. and Ohno et al.

Maenza does not specifically teach rotating the first and second disc substrates with resin spread therebetween at a low speed, it being noted above Maenza does teach rotating the first and second disc substrates with resin therebetween while applying the uv curing light. Tsuboi et al. disclose applying uv light to cure a uv light curing resin spread on a disc substrate by rotating the disc substrate at a low speed (See the abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include in the method disclosed by Maenza as modified by Young rotating the disc substrates with resin spread therebetween at a low speed at the same time as applying the uv light to cure the resin such that the uv light is evenly applied as shown by Tsuboi et al.

Maenza does not specifically teach the distance between the uv light source and the disc substrates. Anzai et al. are exemplary in the art of applying uv light from a uv light source to a disc substrate wherein the distance between the source and substrate depends upon the intensity of the light source, the time the uv light source is applied, etc. wherein 10 mm or less is

specifically shown to not deform the disc substrates (Column 16, lines 30-67 and Column 17, lines 1-58). It would have been obvious to one of ordinary skill in the art at the time the invention was made to experimentally determine the distance of the uv light source from the disc substrate in Maenza as modified by Young as a function of the intensity of the uv light source, the time the uv light source is applied, etc. as doing so would have required nothing more than ordinary skill and routine experimentation wherein routine experimentation and the specific distance of 10 mm or less are shown by Anzai et al.

Regarding the limitation that the plurality of light emitting semiconductor elements are arranged at a high density, it is noted the term "high density" is not further defined in the claims or specification such that the array of LEDs taught by Maenza as modified by Young is seen to be a high density array. Furthermore, the array of LEDs is present to provide uv curing light such that it would have been obvious to one of ordinary skill in the art at the time the invention was made to experimentally determine the density of the array of LEDs taught by Maenza as modified by Young as a function of the ability of the array to supply an adequate and even amount of uv curing light as doing so would have required nothing more than ordinary skill and routine experimentation.

Regarding claim 7, Maenza does not specifically teach semi-curing the spread resin and transferring the first and second disc substrates with resin spread therebetween to a next process of fully curing the resin. Ohno et al. disclose curing a uv curable resin between two disc substrates to an even thickness comprising providing two disc substrates with a uv light curable resin therebetween, rotating the disc substrates at a high speed to evenly spread the resin over the disc substrates, detecting the thickness of the spread resin to determine when the spread resin has

reached a preset thickness, applying uv light to the inner and/or outer circumference of the disc substrates to semi-cure the resin at the inner and outer edges to maintain the thickness during further processing, and transferring the disc substrates with resin therebetween to a next process of applying uv light to completely cure the resin layer (Figures 14 and 15 and Column 17, lines 15-67 and Column 18, lines 1-47). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include following the spreading of the resin between the disc substrates as taught by Maenza as modified by Young, Tsuboi et al., Ohno et al., and Anzai et al. a step of detecting the thickness of the resin and then semi-curing the resin before transferring to a process of fully curing the resin as shown by Ohno et al. to form the resin between the disc substrates with an even thickness.

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maenza, Young, Tsuboi et al., Ohno et al., and Anzai et al. as applied to claims 1 and 7 above, and further in view of Amo et al. (U.S. Patent 5,779,855).

Maenza, Young, Tsuboi et al., Ohno et al., and Anzai et al. as applied above teach all of the limitations in claim 6 except for a specific teaching of applying uv light to the edges of the disc substrates from outside a circumference of the disc substrates to cure the resin present at and/or protruding from the edges of the disc substrates. Amo et al. disclose curing a uv curable adhesive between two disc substrates wherein additional uv light is applied from outside the circumference of the disc substrates to the edges of the disc substrates to better cure the adhesive along the edges (Figure 1 and Column 5, lines 30-33). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include in Maenza as modified by Young, Tsuboi et al., Ohno et al., and Anzai et al. the application of uv light to the edges of the

disc substrates, i.e. uv light applied from outside the circumference of the disc substrates, to better cure the adhesive along the edges as shown by Amo et al.

Response to Arguments

9. Applicant's arguments with respect to claims 1, 6, and 7 have been considered but are moot in view of the new ground(s) of rejection.

> Applicants argue, "One of ordinary skill in the art of preparing multi-layered optical recording mediums according to Maenza would not be led to the Young reference, as it represents non-analogous art with respect to Maenza. Therefore there is no motivation to combine Maenza and Young as suggested by the Examiner.".

Maenza discloses using a narrowband uv light source such as a scanning laser to cure the uv light curable resin between two disc substrates to overcome the difficulties in using a wideband uv light source such as a uv lamp as wideband light sources are difficult to spectrally control generating large amounts of energy, i.e. energy having wavelengths outside of those required to cure the uv light curable resin, and wideband uv light sources also generate large amounts of heat that can warp the first and second disc substrates and require longer curing times. Young discloses using a narrowband uv light source such as a scanning laser or an array, i.e. plurality, of light emitting diodes to cure uv light curable resins to overcome the difficulties in using a wideband uv light source such as a uv lamp which emits broad ranges of frequencies and wavelengths not used to cure the uv light curable resin resulting in wasted energy. Thus, as both Maenza and Young are concerned with curing a uv light curable resin with a narrowband uv light source to overcome the difficulties associated with using a wideband uv light source the references are analogous wherein Young specifically demonstrates scanning lasers and light

emitting diodes are functionally equivalent sources of narrowband uv light for curing uv light curable resins.

> Applicants further argue, "Additionally, replacing the uv laser of Maenza with a plurality of light emitting semiconductor elements would change the principle of operation of Maenza (that of utilizing a uv laser), therefore there can be no suggestion or motivation to modify Maenza as suggested by the Examiner (MPEP j 2143.01).".

The principle operation of Maenza is the use a narrowband light source to cure a uv light curable resin to overcome the difficulties in using a wideband light source wherein Young concerned with the same demonstrates scanning lasers and light emitting diodes are functionally equivalent sources of narrowband uv light.

> Applicants further argue, "While the distance in this process is 10 mm, the Anzai et al. reference is not directed at curing an adhesive between disc substrates. Therefore, although the reference teaches a distance of 10 mm for smoothing the surface of the disc, the reference fails to render it obvious to use a distance of 10 mm for curing the adhesive between the disc substrates.".

Anzai et al. are exemplary in the art of applying uv light from a uv light source to a disc substrate wherein the distance between the source and substrate depends upon the intensity of the light source, the time the uv light source is applied, etc. wherein 10 mm or less is specifically shown to not deform the disc substrate. Thus, as there must be some determined distance between the uv light source and disc substrates taught by Maenza it would have been obvious to one of ordinary skill in the art at the time the invention was made to experimentally determine this distance as a function of the intensity of the uv light source, the time the uv light source is applied, etc. as doing so would have required nothing more than ordinary skill and routine experimentation wherein both routine experimentation and the specific suggestion of 10 mm or less are shown by Anzai et al.

> Applicants further argue, "The Amo reference fails to disclose or suggest the curing of "adhesive protruding between the outer edges of the substrates"."

The claims are not commensurate in scope with this argument.

> Applicants further argue, "However, Ohno fails to disclose irradiating the disc substrates with ultraviolet light while the disc substrates are rotated slowly after rotating at a high speed to spread the adhesive, as presently claimed in claim 1." and "In addition, Ohno et al. fails to provide a motivation for rotating the substrates while the adhesive is fully cured.".

The claims are not commensurate with this argument as the claims do not require rotating the disc substrates at low speed while applying uv light. In any event, rotating the disc substrates at low speed is a new limitation addressed by Tsuboi et al. above.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **(571) 272-1216**. The examiner can normally be reached on M-F (7:15 AM - 3:45 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

John L. Goff